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tion, their methods of work, their losses or successes, in a calling now almost past. "When the trade was at its height, there were occasionally fair fortunes made, and the crews at times were well paid. The life was frequently one of great privation, and at times of deep denial and not a little danger. There was, however, much of fascination in the pursuit of seals, whales, and other creatures of the far north, and one cannot help a feeling of regret that these days have passed away never to return."

G. M. A.

Notes.— In a paper by Miss M. J. Klem, entitled "A Revision of the Palæozoic Palæëchinoidea, with a Synopsis of All Known Species" (*Trans. St. Louis Acad. Sci.*, vol. 14, no. 1, May 5, 1904) there are a number of conclusions drawn to which attention should be called. These are mainly apparent refutations of the principles of development given by Dr. R. T. Jackson and Dr. T. A. Jaggar in their paper on "Studies of *Melonites multiporus*" and by Dr. Jackson in his paper "Studies of Palæëchinoidea" (*Bull. Geol. Soc. Amer.*, vol. 7). These apparent refutations seem to arise from a misconception of the principles of development as given in those papers. On page 2 of Miss Klem's paper the statement of the above authors that "the interambulacral area of the adult of *Melonites* when perfect, consists of two plates at the ventral termination" is claimed to be incorrect and she maintains that it always terminates in three plates when the specimen is perfect, citing figures 6, 8, 12, and 13 in proof. In these sixteen drawings in which the line marking the ventral border of the perfect specimen is shown but four times (in 6*b*, 6*d*, 12*c*, 13*c*) the completion of the adambulacral plates laterally to show the impingement of the ambulacral plates is lacking, a feature which would give much more definiteness to the whole series of figures. In these sixteen drawings all of which are claimed to show the invariable termination in three plates, four areas show termination ventrally in two plates (figs. 6*a*, 6*b*, 6*c*, 8*c*). This substantiates the point in question, that when perfect the area terminates in two plates as shown by Jackson and Jaggar. The other figures represent cases in which there are three or more plates ventrally which according to Jackson and Jaggar are wanting in the plates found at the ventral part of a complete specimen. On page 3 is a statement of doubt concerning the power of resorption to remove plates ventrally. Certainly a study of modern sea urchins in various stages of development would make this power of resorption perfectly clear. At the end of the page is this statement: "Furthermore, if resorp-

tion took place (which I doubt very much) by what law of nature could the plates twist themselves from the position indicated in fig. 11, pl. 3, to that shown in fig. 10, pl. 3?" A more careful reading of their explanation of the figures would show that the plates would not by any law of nature necessarily have to twist themselves in any way, as it is stated that figure 11 is adapted from one specimen, while figure 10 is drawn from an entirely different specimen which is described as aberrant.

In regard to the idea of the introduction of columns there is an entire misunderstanding of the statements of Jackson and Jaggard. They call the two columns which terminate at the ventral border, columns 1 and 2, then the next added column is spoken of as the third column, etc. Miss Klem does not make this grouping but makes one of her own, in which the early columns are ignored and the first column in her scheme is the first one added above the border shown in her figures. Therefore the first column of her scheme may correspond to the third, sixth, or any column of the other authors except what they really call the first. With such a failure to use equivalent terms it is obvious that other results are obtained especially in a group where the structure is largely one of numerical sequence. As a result of this difference in terminology, the following statement is made: "While this rule ('that . . . newly added columns normally alternate to left and right as introduced, even numbered columns typically appearing on the right of odd ones') may apply to some isolated and imperfect specimens, the contrary becomes quite evident by examining a large and complete collection of perfect fossils." Twenty-three figures are referred to in order to show that the rule does not hold in usual cases. However, by using the basis of numbering given by the original authors at least seventeen out of these twenty-three figures given by her show decidedly the correctness of their rule.

A statement which needs correction is given on page 5: "Another feature, which will not stand a critical test, is the supposition of the above mentioned authors, that new columns are always introduced by a pentagonal plate with the apex pointing ventrally or toward the oral area." Exceptions are given to the rule but the fact is overlooked that the original authors show that there are exceptions, as in figure 10 where a column is introduced by a tetragonal plate, in figure 14 where one is introduced by a hexagonal plate, and in figure 16, where one is introduced by a heptagonal plate, the same variations that Miss Klem simply reiterates. The statement is made that "the initial plate of a column when pentagonal often has the

apex pointing dorsally," but there are no examples of its frequency given and in looking through the figures carefully but two cases in over a hundred show the apical angle in a position which may be considered as pointing dorsally in relation to the axis of the newly added column.

On the whole Miss Klem's paper instead of in any way disproving the views originally worked out by Jackson and Jaggar seems, in so far as it goes, to be a confirmation of them when they are reduced to equivalent terms.

The bibliography includes works that have only a bare mention of the Echini, as Zittel's *Geschichte der Geologie und Paläontologie*, while certain others are left out, the most prominent noted being Alexander Agassiz's "Revision of the Echini."

In the systematic treatment there are a number of statements which are open to criticism. On page 1 is the statement that "all the Palæozoic Echini belong to the *Class Cidaridæ*" (italics are mine). On page 10 the class is given as Echinoidea. Also on the same page is given a list of the prevailing characters on which the classification is based. In these the number of columns in the interambulacrum is left out but is nevertheless used in all the descriptions. The number of columns in the ambulacral areas and the number of pores are considered as two of the most important characters. This latter portion is due possibly to the surprising statement made that Palæechinus has four pores in each ambulacral plate. As given in the generic description Palæechinus has but two columns of ambulacral plates, but under *P. lacazei* Julien (page 34), primary and secondary plates are spoken of and one pair of pores is given with a question. Such a condition is in line with the accepted idea that all the Palæozoic Echini have a single pair of pores to each ambulacral plate.

Frequently the generic description does not agree with the characters given under the various species. For example, *Lepidesthes* is stated to have ten columns of plates in each ambulacral area. Five species are given, the first with 18 to 20, the second with 10 or 12, the third with 8 or 9, the fourth with 10, the fifth with 7 or 8. A summary would give 7 to 20 instead of 10. In *Lepidechinus* the number of interambulacral plates is given as 9 to 11. But two species are given, the first with 8, the second with 7 to 9 columns of plates in this area. Many other instances might be pointed out but these suffice to show that the statements given in this work should be carefully confirmed before being accepted.

J. A. CUSHMAN.

The mechanism by which geckos and other lizards cling to smooth overhanging surfaces has been investigated by Schmidt (*Jena. Zeitschr.*, vol. 39, pp. 551-580), who finds that the scales on the under sides of the toes of these animals carry clusters of fine hair-like bodies which, however, end in small flat faces and not in points. The under surfaces of the toes are provided with blood spaces that act as erectile organs and the whole mechanism gives no support to the idea that these animals adhere to overhanging surfaces by suction. Schmidt believes that the act of holding on to the surface is dependent upon the hair-like bodies and he is inclined to ascribe it to some electrical phenomenon produced by them.

The comparative anatomy of the Fallopian tubes in mammals has been fully worked out by U. Gerhardt (*Jena. Zeitschr.*, vol. 39, pp. 649-712).

The mutual relations of the kidneys and gonads in *Halotis* have been studied by Totzauer (*Jena. Zeitschr.*, vol. 39, pp. 527-550). The two kidneys are not in communication with each other, but open separately into the mantle cavity. The rudimentary left kidney communicates with the pericardium and opens into the mantle cavity on the left side of the rectum directly. The right kidney has a well developed duct leading to the mantle cavity and also an opening into the pericardium. The gonads are discharged through their own ducts into the right kidney from which their products escape into the mantle chamber through the duct of the right kidney.

Boveri (*Jena. Zeitschr.*, vol. 39, pp. 445-524) in a series of experiments on sea-urchin eggs, has shown that abnormal numbers of chromosomes in eggs or in blastomeres are inherited unchanged by the descendant cells. Cells with abnormally large numbers of chromosomes are abnormally large and have abnormally large nuclei and the reverse. The number of cells in a growing sea-urchin larva is inversely proportional to the chromatin content thus showing a relation between the amount of chromatin and the amount of protoplasm. This relation, which is in the form of a regulation, is established through the number of cell divisions which the cytoplasm of the egg may undergo.

E. P. Felt's Report on the mosquitoes or Culicidæ of New York State (*New York State Museum, Bull.* 79, 168 pp., 57 pls.) "represents about three years' work and gives a comprehensive account of the mosquitoes occurring in New York State, with special reference

to methods of control. Some 55 species are treated, the larvæ or wrigglers of 43 are described, and accounts of their habits and life history are given. There are tables for the separation of adults and larvæ, and the value of the work is greatly enhanced by over 100 original line-drawings and 57 excellent process plates reproduced from the author's photomicrographs. The keys and illustrations should enable physicians, and in fact almost any person having a fair microscope at his disposal, to identify most of the common forms in either the adult or the larval stage. This bulletin should also appeal to teachers interested in nature study, since no group of insects lends itself more readily to class room conditions."

In a sumptuously illustrated article on the Rocky Mountain Goat, Mr. Madison Grant (*Ninth Ann. Rept. N. Y. Zool. Soc.*, pp. 1-36) gives an account of the characters, relationships, distribution, and habits of this peculiar group of animals. A number of photographs of living and mounted specimens illustrate the paper.

A list of the mammals of North Carolina, exclusive of the Cetacea, by C. S. Brimley (*Journ. Elisha Mitchell Sci. Soc.*, 1905) records 66 species at present known from the State. Short notes on the distribution and analytical keys for determination of the species, make it of general value to others than specialists.

ANTHROPOLOGY.

La sociologie génétique¹—genetic sociology—occupies itself, according to the definition of the author (p. 3) with "the origin of human society and all the phenomena by which it is influenced; the term being equivalent with social embryogeny."

The writer endeavors in one small volume to give an outline of the sources and development of the essential constituents of human organization, and he is not entirely successful. He has produced a work of generalities and philosophy, on facts that are not always ample enough, or fully reliable.

The material utilized consists of (1) studies of animal societies and animal life; (2) studies of savage peoples; (3) results of

¹ Cosentini, François. *La sociologie génétique; Essai sur la pensée et la vie sociale préhistoriques*. Introduction de Maxime Kovalevsky. Bibliothèque de Philosophie Contemporaine, Paris, Alcan, 1905. 8vo, xviii + 205 pp.